

Launching the Vision

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I know that all of you in the audience tonight also have many choices as to how to spend your evenings, and so I thank you for spending a little bit of time listening to me. I'll try to be brief and to the point, and then take your questions.

I am here for one reason tonight: to share with you my views concerning how we, collectively, must behave to make the Vision for Space Exploration the paradigm for "what NASA does". So, with a tip of the hat to Ernest Shackleton, who led a perilous expedition to Antarctica, we at NASA are, in effect, posting the following solicitation to industry: "Rocket scientists wanted for hazardous work. Low wages, bitter cold conditions (especially at Glenn Research Center) followed by hot, humid conditions at the Johnson and Kennedy Space Centers, long

hours of complete darkness in wind tunnels. Safe return home at a decent hour doubtful. Honor and recognition in event of success."

And, I'm not really sure about that last point.

The reason for this solicitation is this: Our nation needs your help to carry out the Vision for Space Exploration. We must have your help. We're asking those of you assembled here tonight, and many others like you in the space business, to make some very real sacrifices to carry out this journey for one fundamental reason: our national leadership in space exploration requires it.

In this era, exploration of the cosmos is the most technically challenging thing any nation does. This *is* rocket science. The group assembled here tonight represents the rocket scientists, the engineers and the industrial leaders who, along with NASA, will make it possible. We need your help if we are to carry out an effort that will be the most challenging and rewarding endeavor our nation will pursue in the 21st century, one that will inevitably be fraught with both great tragedy and great triumphs.

If any group does, this group certainly understands great tragedy and great triumph. A little over three years ago, many of you were dealing with the recovery and investigation into the loss of the Space Shuttle *Columbia* and its crew. Many of you lost friends on that mission. And in the days and months following the loss of *Columbia*, there was an extensive discourse concerning our nation's lack of coherent and compelling goals for our civil space program. All of us had to deal with a long period of grim introspection that turned into a national dialogue about the role of space exploration – particularly human spaceflight – as a mission for our nation.

I have said many times that we owe a debt to Admiral Hal Gehman and the members of his Commission, who recognized that merely determining the proximate cause of the *Columbia* accident, and returning the shuttle to flight, would be insufficient to return our nation's space program to its proper course. The cost and risk of the space enterprise could only be justified by goals beyond those we had had for a generation. NASA had been suffering from a long period of a benign neglect by the public and our stakeholders concerning the broader

purposes of our nation's space enterprise. I think all of you know that I believe we have been restricted to low Earth orbit for far too long, and that the proper strategic focus of our nation's space program should be the exploration of our solar system beginning with the Moon, Mars, and near-Earth asteroids. Nothing less gives us a space program worthy of its demands, and the sacrifices it requires.

Another point I have made many times is that the shuttle is the most amazing machine humans have ever built. Likewise, the assembly of the International Space Station is a more difficult engineering project even than Apollo. That said, we must still admit to ourselves that we have not met the original goals for either of these programs, for myriad reasons dating back 35 years or more, reasons which involve strategic and budgetary decisions made, properly or otherwise, above NASA. Following the loss of *Columbia*, it was time for us to admit to ourselves that it was also time to move on.

President Bush, many others within the Administration, and the Congress all recognized the strategic importance of space exploration, and the need to address our nation's purpose with that enterprise in a

way that I believe was best addressed by President Kennedy in his speech at Rice University in September, 1962. Remember with me those compelling words, “We choose to go to the Moon in this decade and do the other things, not because they are easy, but because they are hard; because that goal will serve to organize and measure the best of our energies and skills; because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win.” Who is not stirred, even today, by those words?

But we live today in very different times than we experienced in the 1960s. President Bush recognized this; the Vision for Space Exploration is not a race, but a journey, where the fundamental goal is “to advance U.S. scientific, security, and economic interests.”

But the fact that the Vision does not call for a race does not mean we should rest on our laurels, nor postpone the difficult choices to be made as we embark upon this journey. We have a lot of hard work to do, and will need your help now more than ever.

The Vision for Space Exploration is now the law of the land, as directed in the NASA Authorization Act of 2005. But it will take more than a law to make it a reality.

First up, we must complete the assembly of the International Space Station with dedication and focus over the next several years. We and our counterparts from Canada, Europe, Japan, and Russia are now agreed upon the plan to go forward with the ISS. Our next return-to-flight mission, STS-121, will reinitiate the assembly of the Space Station in earnest, and help to determine if NASA can conduct a fifth servicing mission to the Hubble Space Telescope.

The conduct of these Space Shuttle missions to the ISS, the 2010 retirement of the shuttle, and the safe and effective transition to new systems is the greatest management challenge for our government/industry team over the next several years. We are in this together; it cannot be otherwise. We are engaged in flying out and retiring a system which is at the same time inherently developmental in nature. What could be more difficult?

Indeed, the challenge of our era is not one whit less daunting than that faced by those of the Apollo era. Completing the International Space Station, retiring the Space Shuttle by 2010, and managing the effective transition from the Space Shuttle to the new Crew Exploration and Crew Launch Vehicles are fully the equal of the tasks set before any earlier generation. I understand that many will question whether NASA and our industry team have the wherewithal to carry them out. I believe we can.

Now, we are late out of the starting block in developing the Crew Exploration and Crew Launch Vehicles. Difficult decisions needed to be made last year, and one of the most important of these was to base our new Exploration architecture on Shuttle-derived launch systems. We are now in a competitive source selection for the Crew Exploration Vehicle, and it will be up to the NASA and industry teams to turn these plans into reality. Again, all we have to offer whomever wins this contract award is hard work, less than ideal wages, and – maybe – honor and recognition in the event of success.

We are in a critical transition period for our nation's human spaceflight program, and we must recognize this and dedicate ourselves to effecting this safe and timely transition. We must expedite our work, and begin to turn proposals and designs for rocket engines into fire and smoke. We must carefully manage the transition of our best and brightest engineers and technicians from the operations of the Space Shuttle to the development of new Exploration systems. We must train the next generation of space engineers and technicians and let them cut their teeth on flying real hardware today, while allowing some of the more experienced engineers to help out with the designs of the new Exploration systems. This is a team effort between government and industry, as well as a passing of the baton from those of you who are my age to the next generation of space engineers. We need to mentor this next generation, to provide a permanent and lasting legacy for them.

Now let me be realistic with you. We cannot require the same industrial base for the new Exploration systems as we need today to operate the Space Shuttle. The simplicity of the design for the CEV and its launch systems does not, should not, must not require the industrial

footprint of the shuttle. If we are to carry out missions to the Moon, Mars, and the near-Earth asteroids, our resources – your time and effort – must be directed to re-tooling our industrial capabilities for the CEV, the CLV, the heavy-lift launch vehicle, and human landers. Government and industry will have some frank discussions in the coming weeks, months, and years ahead about what we will need, and what is no longer needed, as we make this transition.

Further, with our Shuttle-derived architecture, Bill Gerstenmaier, Scott Horowitz, and I believe that significant savings are possible through contract efficiencies and cost avoidance which should accrue through the use of common systems and facilities between shuttle and Exploration. So I'm asking you who are here tonight to come forward to these gentlemen if you have innovative ways to save money. If you have an idea for how better to manage our contracts with you, or any better idea to save money, let's hear it.

I am, quite simply, appealing to *your* best judgment of what is required for our nation to maintain its leadership in space during this difficult transition period between the Shuttle's retirement and bringing

the CEV on-line, whether or not it is temporarily best for your company's bottom line. We're in this together, or it won't happen at all. We need your help.

These are difficult times requiring hard choices. We make decisions every day at NASA, and you must also make your own business decisions as to how to invest your time, resources, and energy. But I really want you to think of ways that your business can help in the safe and cost-effective transition from retiring the Shuttle system to bringing on the new Crew Exploration and Launch Vehicle Systems. Congress and the American taxpayers are expecting results from NASA and our industry team. We need your help to turn this Vision into reality, and working together we will succeed.